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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,651	05/22/2001	Eng-Chew Cheah	9818-0052-999	1047

24341 7590 03/12/2004

MORGAN, LEWIS & BOCKIUS, LLP.
3300 HILLVIEW AVENUE
PALO ALTO, CA 94304

EXAMINER

MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,651

Applicant(s)

CHEAH, ENG-CHEW

Examiner

James M. Mitchell

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata (U.S 5,055,911) in combination with Noda (JP406169033).

Ogata discloses (Fig 2) an integrated circuit package, comprising:
a substrate (1) having a center region and a peripheral region, a semiconductor die (9) positioned on the center region of the substrate, the semiconductor die having an inherent bond pad (not labeled; die connection to wire); a non-conductive ("ceramic"), lead finger mounting ring (5) positioned on the peripheral region of the substrate and extending upwards therefrom; a plurality of package leads (6a, b) attached to an upper surface of the lead finger mounting ring; a plurality of bond wires (11) with a first end portion coupled to the package lead and a second end portion coupled to the bond pad; a die attachment pad that is attached between the semiconductor die and the substrate.

Ogata does not appear to explicitly disclose an epoxy material confined by the lead finger mounting ring and forming a rounded top surface, first encapsulation over the bond wire, the semiconductor die, a portion of the package lead; and a mold compound forming a second encapsulation over the first encapsulation, wherein the first encapsulation limits

movement of the bond wire during formation of the second encapsulation, the lead finger mounting ring, the substrate, or a portion of the package lead.

Noda utilizes a resin material confined by a mounting ring and forming a first encapsulation over the bond wire, the semiconductor die, a portion of the package lead; and a mold compound forming a second encapsulation over the first encapsulation, the lead finger mounting ring, the substrate and a portion of the package lead, with the first protective encapsulation comprises a rounded top surface.

It would have been obvious to one of ordinary skill in the art to incorporate forming a rounded top, first encapsulation over Ogata's bond wires, semiconductor die, portion of the package lead, such that a portion of said first encapsulation is confined in a ring and to form a second encapsulation over the first encapsulation, the lead finger mounting ring, the substrate and a portion of the package lead, in order to provide moisture resistance as taught by Noda (English Abstract).

In regards to the use of epoxy, examiner takes official notice that epoxy is well known resin for encapsulation in the art at the time the invention was made and that it would have been obvious to one of ordinary skill in the art to form the resin of Noda as an epoxy in order provide a resin encapsulant as required by Noda (English Abstract; ("sealing")).

With respect to claim 2, process limitation, that "the first encapsulation limits movement of the bond wire during formation of the second encapsulation," the prior art structure is the same as the claimed invention. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based

on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

In regard to claims 7-9, Ogata further discloses an inherent bond pad pitch, thickness and diameters for the wires.

Ogata does not appear to explicitly disclose that the pad pitch between two bond pads is under 60 micrometers, a length of at least one of the bond wires is less than 3500 micrometers, or that the diameter of at least one bond wire is under 25 micrometers.

However, it would have been obvious to form the structure of Ogata with these limitations, because it has been held that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

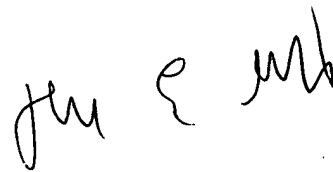
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 6:30-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jmm



DAVID E. GRAYBILL
PRIMARY EXAMINER